

9/20/04 P0323

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Application of

Geoffrey B. Rhoads

Application No.: 09/800,093

Filed: March 5, 2001

For: GEO-REFERENCING OF AERIAL
IMAGERY USING EMBEDDED
IMAGE IDENTIFIERS AND CROSS-
REFERENCED DATA SETS

Examiner: A. Blackman

Date: September 20, 2004

Response Under 37 CFR § 1.116

Expedited Procedure

Art Unit: 2676

Confirmation No.: 3258

CERTIFICATE OF MAILING

I hereby certify that this paper and the documents referred to as being attached or enclosed herewith are being deposited with the United States Postal Service on September 20, 2004, as First Class Mail in an envelope addressed to: Mail Stop Appeal Brief – Patents, COMMISSIONER FOR PATENTS P.O. Box 1450, Alexandria, VA 22313-1450

Steven W. Stewart
Attorney for Applicants

APPEAL BRIEF

Mail Stop Appeal Brief – Patents
COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicants respectfully request the Board of Patent Appeals and Interferences (hereafter “Board”) to reverse the outstanding final rejections.

This Appeal Brief is in furtherance of a Notice of Appeal filed August 6, 2004. Please charge the fee required under 37 CFR 1.17(f) or any deficiency to deposit account 50-1071 (please see the accompanying transmittal letter).

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REAL PARTY IN INTEREST

The real party in interest is Digimarc Corporation, by an assignment from the inventors recorded at Reel 011901, Frames 0376-0377, on June 18, 2001.

RELATED APPEALS AND INTERFERENCES

An Appeal Brief is filed concurrently herewith in child U.S. Patent Application No. 10/002,954.

STATUS OF CLAIMS

Claims 1 and 8 stand finally rejected and are being appealed.

Claims 2-7 and 9-15 have been canceled.

STATUS OF AMENDMENTS

An Amendment Accompanying Appeal Brief is filed concurrently herewith. The claims discussed herein correspond to those remaining after entry of the accompanying amendment.

All other amendments have been entered.

SUMMARY OF CLAIMED SUBJECT MATTER

The claimed subject matter generally relates to embedding digital watermarks in aerial imagery and generating maps therefrom.

A first aspect of the invention, as recited in claim 1, provides a method of compiling satellite imagery and generating a map therefrom (see, e.g., page 3, lines 11-16; page 12, lines 22-23; see also original claim 1). An improvement includes watermarking image data acquired by a satellite (see, e.g., page 9, lines 22-23; page 10, lines 19-20; and see also original claim 1); storing the watermarked image data in a database (see, e.g., page 12, lines 15-21; and see also original claim 1); generating a map from the database (see, e.g., page 8, lines 4-26; page 12, lines 15-21; page 12, lines 22-23; see also original claim 1); and then watermarking the map (see, e.g., page 10, lines 19-21; page 12, lines 15-16; page 12, lines 22-23; and see also, original claim 1).

Another aspect of the invention, as recited in claim 8, is a composite map formed from plural sets of component map data (see, e.g., page 12, lines 15-21; page 12, lines 22-23). The method is characterized in that the plural sets of component map data each are encoded with a different watermark (see, e.g., page 10, lines 19-25; page 10, line 26 – page 11, line 2; page 11, lines 3-6; page 12, line 29 – page 13, line 8; and see also original claim 8), each of said different watermarks encoding, or linking to, meta data associated with its respective component map data (see, e.g., page 11, lines 19-23; page 11, line 24 – page 12, line 11; see also original claim 8).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

1. Claim 1 stands finally rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,504,571 (hereafter “the Narayanaswami patent”).
2. Claim 8 stands finally rejected under 35 U.S.C. 103(a) as being unpatentable over the Narayanaswami patent in view of U.S. Patent No. 6,526,155 (hereafter “the Wang patent”).

ARGUMENT

Introduction

The cited references fail to teach or suggest all of the elements of the pending claims for at least the reasons set forth below.

Rejection under U.S.C. 102(e) over the Narayanaswami patent

Claim 1

Independent claim 1 reads as follows:

1. *In a method of compiling satellite imagery and generating a map therefrom, an improvement comprising:*

watermarking image data acquired by a satellite;
storing the watermarked image data in a database;
generating a map from the database; and
watermarking the map.

Claim 1 recites two distinct watermarking steps. First, image data that is acquired by a satellite is watermarked. Second, a map generated from the already watermarked image data is watermarked.

The Narayanaswami patent does not teach or suggest such first and second watermarking steps in the manner recited by claim 1.

The office correctly suggests¹ that the Narayanaswami patent Col. 8, lines 6-19, discloses placing parameters into a “captured image” (see Col. 8, lines 6-16, discussing camera 100). The cited Col. 8 passage corresponds to the Narayanaswami patent at FIG. 1, which “is a block diagram of an image capturing system for generating digital images having a plurality of recorded parameters” (emphasis added) (see Col. 4, lines 49-52). Camera 100 includes a watermark processor 134 by which a captured image is watermarked (see FIG. 1; see also Col. 8, lines 6-8).

What is lacking is a second watermarking step for a map generated from already watermarked images.

To meet this feature the Office vaguely states: “it is inherent that as long as watermarking image data acquired by a satellite is performed that watermarking the map must also be performed” (see the final office action, page 4, last 3 lines).

While the Office’s statement may support watermarking of images, it fails to provide a second step of watermarking already-watermarked imagery generated from a database in the form of a map. The Narayanaswami patent discusses generating a map (see Col. 4, lines 32-41)

¹ See the May 7, 2004, Final Office Action on page 2, lines 12-14 of paragraph 1.

and displaying retrieved digital images (see Col. 4, line 42). Yet, the Narayanaswami patent is silent about watermarking such a generated or displayed map.

There are benefits to the claim 1 combination.

For example, second stage watermarking can be used for forensic or identification purposes. Consider the description on page 12, lines 15-21 of the specification:

In some embodiments, a watermark can be applied to each DEM/map from the master database as it is retrieved and output to the user. The watermark can indicate (i.e., by direct encoding, or by pointing to a database record) certain data related to the compiled data set, such as the date/time of creation, the ID of the person who queried the database, the component datasets used in preparing the output data, the database used in compiling the output data, etc. Thereafter, if this output data is printed, or stored for later use, the watermark persists, permitting this information to be later ascertained.

By way of further example, in some implementations, second stage watermarking may include so-call “fragile” watermarking. Fragile watermarking is designed to disappear or predictably degrade to evidence manipulation. Consider the description on page 12, line 29 – page 13, line 4 of the specification:

Some watermarks used in the foregoing embodiments can be “fragile.” That is, they can be designed to be lost, or to degrade predictably, when the data set into which it is embedded is processed in some manner. Thus, for example, a fragile watermark may be designed so that if an image is JPEG compressed and then decompressed, the watermark is lost. Or if the image is printed, and subsequently scanned back into digital form, the watermark is corrupted in a foreseeable way.

(These examples are not meant to limit the scope of claim 1. Of course, there are many other examples and implementations that will fall within the scope of claim 1.)

While the Narayanaswami patent might suggest watermarking captured satellite imagery, it does not teach or suggest a second watermarking step to watermark a map generated from the already watermarked satellite imagery.

Respectfully, the final rejection of claim 1 should be reversed.

Rejection under U.S.C. 103(a) over the Narayanaswami patent in view of the Wang patent

Claim 8

Independent claim 8 reads as follows:

8. A composite map formed from plural sets of component map data, characterized in that said plural sets of component map data each are encoded with a different watermark, each of said different watermarks encoding, or linking to, meta data associated with its respective component map data.

The Office correctly recognizes that the Narayanaswami patent does not teach or suggest a composite map formed from plural set of component map data, with each component including a different watermark, and with each of the different watermarks encoding or linking to metadata associated with its respective component map data (see the final office action at page 7, lines 1-14). The Office turns to the Wang patent to meet the Narayanaswami patent's deficiencies.

The Wang patent is cited, at Col. 4, line 4 – Col. 5, line 9, as curing the Narayanaswami patent's deficiencies. Applicant respectfully disagrees.

The cited passage is not understood to teach or suggest that each component includes a different encoded watermark in each component. Instead, the Wang patent's FIG. 1 appears to place the same visible "X" in an image.

And, there is no mention in the cited passages of the Wang patent that each of the different watermarks encodes or link to metadata associated with its respective component map data. For example, there is no suggestion that a first “X” in Fig. 1 encodes or links to information that is different than a second “X” in Fig. 1. Indeed, there is no suggestion that the Xs encode or link to metadata associated with their particular component.

The Wang patent also draws a distinction between “visible” and “invisible” watermarks (see, e.g., Col. 1, lines 12-44). One distinction is that invisible watermarks require hardware or software techniques to retrieve encoded information (see Col. 1, lines 39-44). This distinction implies that visible watermarks rely on the human unaided eye. The Office relies on passages of the Wang patent (e.g., in Cols. 4 and 5) that discuss visible watermarks. It is a far – and unfair – stretch to suggest that the visible watermarks (e.g., the “X” in Fig. 1) “encode” or “link” to metadata in the manner envisioned in claim 8.

We also object to combining the references as suggested. We submit that an artisan would not be motivated to combine the visible watermarking (e.g., the “X”) found in the Wang patent with the digital information embedding (e.g., longitude and latitude from the Table in Col. 7) found in the Narayanaswami patent to achieve the combination recited in claim 8.

Thus, the proposed combination is improper.

We respectfully request that the final rejection of claim 8 be reversed.

CONCLUSION AND REQUEST FOR REVERSAL

The cited references fail to disclose all of the limitations of the pending claims. (Other deficiencies of the art need not be further belabored at this time.) As such, the claims are patentable over the cited references.

Applicants respectfully request that the Board reverse the final rejection of the pending claims.

Date: September 20, 2004

Customer No. 23735

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Respectfully submitted,

DIGIMARC CORPORATION

By



Steven W. Stewart
Registration No. 45,133

CLAIMS APPENDIX

1. (original): In a method of compiling satellite imagery and generating a map therefrom, an improvement comprising:

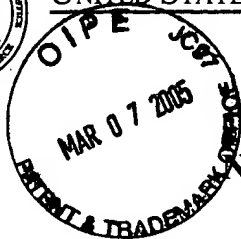
watermarking image data acquired by a satellite;
storing the watermarked image data in a database;
generating a map from the database; and
watermarking the map.

8. (previously presented): A composite map formed from plural sets of component map data, characterized in that said plural sets of component map data each are encoded with a different watermark, each of said different watermarks encoding, or linking to, meta data associated with its respective component map data.



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UNITED STATES DEPARTMENT OF COMMERCE
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NOTICE OF ALLOWANCE AND FEE(S) DUE

23735

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12/17/2004

DIGIMARC CORPORATION
9405 SW GEMINI DRIVE
BEAVERTON, OR 97008

EXAMINER

BLACKMAN, ANTHONY J

ART UNIT

PAPER NUMBER

2676

DATE MAILED: 12/17/2004

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/800,093 | 03/05/2001 | Geoffrey B. Rhoads | P0323 | 3258 |

TITLE OF INVENTION: GEO-REFERENCING OF AERIAL IMAGERY USING EMBEDDED IMAGE IDENTIFIERS AND CROSS-REFERENCED DATA SETS

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE | PUBLICATION FEE | TOTAL FEE(S) DUE | DATE DUE |
|----------------|--------------|-----------|-----------------|------------------|------------|
| nonprovisional | NO | \$1400 | \$300 | \$1700 | 03/17/2005 |

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

HOW TO REPLY TO THIS NOTICE:

Docketed: 3-17-05

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current
SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, **DEC 21 2004**

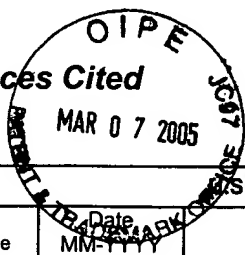
B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

Notice of References Cited



Application/Control No.

09/800,093

Applicant(s)/Patent Under
Reexamination
RHOADS, GEOFFREY B.

Examiner

ANTHONY J BLACKMAN

Art Unit

2676

Page 1 of 1

U.S. PATENT DOCUMENTS

| * | | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Name | Classification |
|---|---|--|-----------------|-------------|----------------|
| X | A | US-2002/0126869 | 09-2002 | Wang et al. | 382/100 |
| | B | US- | | | |
| | C | US- | | | |
| | D | US- | | | |
| | E | US- | | | |
| | F | US- | | | |
| | G | US- | | | |
| | H | US- | | | |
| | I | US- | | | |
| | J | US- | | | |
| | K | US- | | | |
| | L | US- | | | |
| | M | US- | | | |

FOREIGN PATENT DOCUMENTS

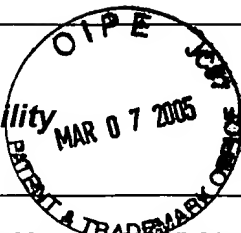
| * | | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Country | Name | Classification |
|---|---|--|-----------------|---------|------|----------------|
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NON-PATENT DOCUMENTS

| * | | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages) |
|---|---|---|
| | U | |
| | V | |
| | W | |
| | X | |

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Notice of Allowability



Application No.

09/800,093

Examiner

ANTHONY J BLACKMAN

Applicant(s)

RHOADS, GEOFFREY B.

Art Unit

2676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 9/23/04.
2. ☒ The allowed claim(s) is/are 1 AND 8, RENUMBERED AS CLAIMS 1 AND 2.
3. ☒ The drawings filed on 05 March 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

Allowable Subject Matter

1. The following is an examiner's statement of reasons for allowance for the two remaining independent claims 1 and 8 (claims 2-6 were cancelled in the Appeal Brief received 9/23/04 and claims 9-15 were constructively elected by original presentation for prosecution on the merits, and accordingly, were withdrawn from consideration as being directed to a non-elected invention on 2/5/04): none of the prior art, including NARAYANASWAMI et al fail to teach or suggest (for claim 1) at least the combination of the watermarking features and limitations as claimed two distinct watermarking steps as claimed. NARAYANASWAMI et al disclose watermarking processor watermarking captured camera images, however, NARAYANASWAMI et al, as well as the prior art, does not teach a second watermarking (watermarking of the map). Further, as per claim 8, neither NARAYANASWAMI et al nor newly cited WANG et al, US Patent Application Publication, Pub. No. US 2002/0126869 alone or together, or WANG et al, alone or in any combination above, teach or reasonably suggest different watermarks encoding or linking to, meta data associated with its respective component map data.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J BLACKMAN whose telephone number is 703-305-0833. The examiner can normally be reached on FLEX SCHEDULE.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MATTHEW BELLA can be reached on 703-308-6829. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



ANTHONY J BLACKMAN
Examiner
Art Unit 2676

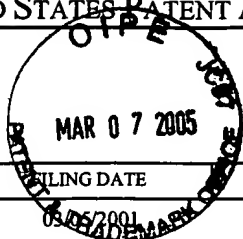


MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600



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Alexandria, Virginia 22313-1450
www.uspto.gov



| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/800,093 | 05/06/2001 | Geoffrey B. Rhoads | P0323 | 3258 |

23735 7590 05/07/2004

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EXAMINER

BLACKMAN, ANTHONY J

| ART UNIT | PAPER NUMBER |
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2676

14

DATE MAILED: 05/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Docketed: 2-7-04
2-7-04
Book: _____ Init: 2

MAY 12 2004

Office Action Summary

Application No.

09/800,092

Applicant(s)

CHENG ET AL.

Examiner

ANTHONY J BLACKMAN

Art Unit

2676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 2/13/2004 have been fully considered but they are not persuasive. Examiner respectfully interprets recited claim language corresponding to associated references differently from applicant.

Regarding claims 1 and 2, examiner interprets the primary reference, NARAYANASWAMI et al, to meet limitations as claimed for claim 1. Applicant's assertion that cited prior art "...at the cited passages stops short of, after map generation, watermarking the generated map (page 7, lines 1-2)", is respectfully disagreed with by examiner because the cited passages read upon claim limitations as recited. Further, column 8, lines 40-62 disclose map generation by system 200 via the image database 216, memory 108 and capturing device 100 in addition to the image annotation module 220 connecting the user-interface 202 and the image database creates and modifies the images and photos. The images and photos bear similar results to maps. Column 8, lines 6-19 disclose "...watermarking every captured image...". Therefore examiner maintains use of primary reference because the captured images, photos and maps are modified at least in association with watermarking every captured image. The individual images are watermarked and later reconstructed into a map or collage or photo album. Finally, regarding the claim limitations for the generation a of a map and then watermaking the generated map, the image capture means by satellite means and watermarking of the captured images bears similar

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results to the claim 1, "...generating a map from the database; and watermarking the map and claim 2 is more specific claiming "...an improvement comprising generating a digital map; and then watermarking the map", because applicant fails to provide the reasoning that the sequence in claim 2 of generating a map and then watermarking the map is significant and made of record, examiner maintains current position with recited art.

Regarding claim 8, examiner respectfully disagrees with applicant's interpretation of the secondary reference, WANG that WANG does not teach the means of a different watermark in each component. WANG clearly suggests user choice of selecting different watermarks. Because user may select different watermarks, any component or each component may be selected for watermarking. Examiner maintains previous art rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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3. Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by NARAYANASWAMI et al, US Patent No. 6,504,571.

As per claim 1, NARAYANASWAMI et al teach in a method of compiling satellite imagery (column 3, lines 6-50, column 4, lines 24-40 [at least inherent satellite imagery], column 8, lines 40-47, column 9, lines 33-40, column 10, lines 48-61, column 11, line 12-column 12, line 22 [at least inherent satellite imagery]) and generating a map (figure 3, elements 322, 324, 326, column 3, lines 6-50, col. 1, line 58-col 2, line 6, 59-col 3, line 50, col 4, lines 7-12, 32-40, col 8, line 63-col 9, line 13, col 10, lines 6-34, col 11, line 45-col 12, lines 22, 66-col 13, lines 10 and 56-62), an improvement comprising: watermarking image data (fig 1, elements 100 and 134, col 8, lines 6-21) acquired by a satellite (figure 3, elements 304, 306, 308, 312, 322, 324 and 326, col 2, line 59-col 3, line 50, col 4, line 14-41, col 10, line 48-61, col 11, line 12-col 12, line 22 [at least inherent satellite means]); storing the watermarked image data in a database (figure 1, element 108, figure 2, elements 206, 208, 210, 212, 214, 216 218, figure 3, elements 304, 312, 322, col 8, lines 6-21, col 11, line 12-col 12, line 22); generating a map from the database (figure 3, elements 322, 324, 326, column 3, lines 6-50, col. 1, line 58-col 2, line 6, 59-col 3, line 50, col 4, lines 7-12, 32-40, col 8, line 63-col 9, line 13, col 10, lines 6-34, col 11, line 45-col 12, lines 22, 66-col 13, lines 10 and 56-62); and watermarking the map (it is inherent that as long as watermarking image data acquired by a satellite is performed that watermarking the map must also be performed , please see above).

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4. As per claim 2, NARAYANASWAMI et al meet limitations of claim 1, including in a method of generating a digital map from a database containing data from a plurality of aerial sources (column 3, lines 6-50, column 4, lines 24-40 [at least inherent satellite imagery], column 8, lines 40-47, column 9, lines 33-40, column 10, lines 48-61, column 11, line 12-column 12, line 22 [at least inherent satellite imagery]), an improvement comprising generating a digital map (figure 3, elements 322, 324, 326, column 3, lines 6-50, col. 1, line 58-col 2, line 6, 59-col 3, line 50, col 4, lines 7-12, 32-40, col 8, line 40-col 9, line 13, col 10, lines 6-34, col 11, line 45-col 12, lines 22, 66-col 13, lines 10 and 56-62); and then

watermarking the map (column 3, lines 6-50, column 4, lines 24-40 [at least inherent satellite imagery], column 8, lines 40-47, column 9, lines 33-40, column 10, lines 48-61, column 11, line 12-column 12, line 22 [at least inherent satellite imagery]).

5. As per claim 3 NARAYANASWAMI et al meet limitations of claim 2 including in which the watermarking encodes, or points to, information that is also conveyed with said map in the form of header data (column 6, lines 49-54 and col 8, lines 6-21)

6. As per claim 4, NARAYANASWAMI et al meet limitations of claim 2, including in which the watermark permits later identification of the data sources used in generating the map (fig 1, elements 100 and 134, col 8, lines 6-21).

7. As per claim 5, NARAYANASWAMI et al meet limitations of claim 2, including in which the watermark comprises, or serves as a link to, an image identifier (the image identifier is equivalent to the parameters of col 8, lines 6-21).

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8. As per claim 6, NARAYANASWAMI et al meet limitations of claim 2, including in which the watermark comprises, or links to, data identifying at least one of the following: component used in forming said digital map, the date of digital map creation, an identifier corresponding to a person who created the digital map, an identifier corresponding to a person to whom the digital map was provided (identification of the photographer- see.col 6, lines 5-30-the underlined claim limitation is at least read upon by said reference).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over NARAYANASWAMI et al, US Patent No. 6,504,571 in view of WANG et al, US Patent No. 6,526,155.

11. As per claim 8, NARAYANASWAMI et al disclose the means of a composite map formed from plural sets of component map data (figure 3, elements 322, 324, 326, column 3, lines 6-50, col. 1, line 58-col 2, line 6, 59-col 3, line 50, col 4, lines 7-12, 32-40, col 8, line 63-col 9, line 13, col 10, lines 6-34, col 11, line 45-col 12, lines 22, 66-col 13, lines 10 and 56-62), in addition to the means of watermarks encoding, or linking to meta data associated with its respective component map data (col 9, lines 33-40, col

10, lines 48-59, col 11, line 12-col 12, line 22), however, does not expressly teach that the means of a composite map formed from plural sets of component map data are each encoded with a different watermark, each of said different watermarks encoding, or linking to meta data associated with its respective component map data. WANG et al provides the suggestion that the means of a composite map formed from plural sets of component map data are each encoded with a different watermark (column 4, lines 4-10, 11-column 5, line 9) and the each of said different watermarks (column 4, lines 4-10, 11-column 5, line 9). It would have been obvious to one skilled in the art at the time of the invention to utilize the variable watermarking means of WANG et al with the system and methods for querying digital image archives containing digital photographs and/or videos ...indexed in accordance with a plurality of recorded parameters including time, date and geographic, location data... (abstract, lines 1-5), in addition to satellite imagery means (column 3, lines 6-50, column 4, lines 24-40 [at least inherent satellite imagery], column 8, lines 40-47, column 9, lines 33-40, column 10, lines 48-61, column 11, line 12-column 12, line 22 [at least inherent satellite imagery]) associated with watermarking processing (figure 1, element 134) and an image archive system (figure 2, col 4, lines 53-60) of NARAYANASWAMI et al because both inventions share similar technological environments related to the processing of variably placed watermarking signals (see NARAYANASWAMI et al column 4, lines 6-19 and see WANG et al column 4, line 60-column 5, line 9).

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J BLACKMAN whose telephone number is 703-305-0833. The examiner can normally be reached on eight-hour FLEX SCHEDULE Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MATTHEW BELLA can be reached on 703-308-6829. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



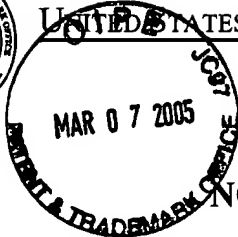
ANTHONY J BLACKMAN
Examiner
Art Unit 2676



MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600



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NOTICE OF ALLOWANCE AND FEE(S) DUE

23735

7590

12/17/2004

DIGIMARC CORPORATION
9405 SW GEMINI DRIVE
BEAVERTON, OR 97008

EXAMINER

BLACKMAN, ANTHONY J

ART UNIT

PAPER NUMBER

2676

DATE MAILED: 12/17/2004

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/002,954 | 10/23/2001 | Geoffrey B. Rhoads | P0477 | 4464 |

TITLE OF INVENTION: USING EMBEDDED STEGANOGRAPHIC IDENTIFIERS IN SEGMENTED AREAS OF GEOGRAPHIC IMAGES AND CHARACTERISTICS CORRESPONDING TO IMAGERY DATA DERIVED FROM AERIAL PLATFORMS

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE | PUBLICATION FEE | TOTAL FEE(S) DUE | DATE DUE |
|----------------|--------------|-----------|-----------------|------------------|------------|
| nonprovisional | NO | \$1400 | \$300 | \$1700 | 03/17/2005 |

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

HOW TO REPLY TO THIS NOTICE:

DEC 21 2004

Docketed: 3-17-05

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

Book: _____ Init: _____

If the SMALL ENTITY is shown as NO:

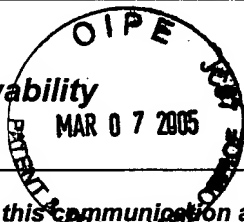
A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

Notice of Allowability

Application No.

10/002,954

Examiner

ANTHONY J BLACKMAN

Applicant(s)

RHOADS ET AL.

Art Unit

2676

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address—

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 9/23/04.
2. ☒ The allowed claim(s) is/are 3-6, 9-18, 41-45 AND 48-50, RENUMBERED AS CLAIMS 1-22.
3. ☒ The drawings filed on 23 October 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

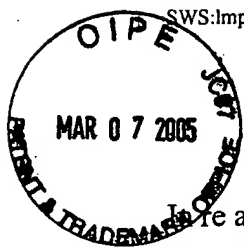
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER



SWS:imp 9/20/04 P0477

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Geoffrey B. Rhoads

Application No.: 10/002,954

Filed: October 21, 2001

For: USING EMBEDDED STEGANOGRAPHIC
IDENTIFIERS IN SEGMENTED AREAS
OF GEOGRAPHIC IMAGES AND
CHARACTERISTICS CORRESPONDING
TO IMAGERY DATA DERIVED FROM
AERIAL PLATFORMS

Examiner: A. Blackman

Date: September 20, 2004

Response Under 37 CFR § 1.116

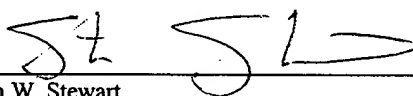
Expedited Procedure

Art Unit: 2676

Confirmation No.: 4464

CERTIFICATE OF MAILING

I hereby certify that this paper and the documents referred to as being attached or enclosed herewith are being deposited with the United States Postal Service on September 20, 2004, as First Class Mail in an envelope addressed to: Mail Stop Appeal Brief – Patents, COMMISSIONER FOR PATENTS P.O. Box 1450, Alexandria, VA 22313-1450


Steven W. Stewart
Attorney for Applicants

APPEAL BRIEF

Mail Stop Appeal Brief – Patents
COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicants respectfully request the Board of Patent Appeals and Interferences (hereafter “Board”) to reverse the outstanding final rejections.

This Appeal Brief is in furtherance of a Notice of Appeal filed August 11, 2004. Please charge the fee required under 37 CFR 1.17(f) or any deficiency to deposit account 50-1071 (please see the accompanying transmittal letter).

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REAL PARTY IN INTEREST

The real party in interest is Digimarc Corporation, by an assignment from the inventors recorded at Reel 012806, Frames 0169-0170, on April 8, 2002.

RELATED APPEALS AND INTERFERENCES

An Appeal Brief is filed concurrently herewith in parent U.S. Patent Application No. 09/800,093.

STATUS OF CLAIMS

Claims 9-18, 41-45 and 48-50 stand finally rejected and are being appealed.

Claims 3-6 are allowed.

Claims 1-2, 7-8, 19-40 and 46-47 have been previously canceled.

STATUS OF AMENDMENTS

All earlier-filed amendments have been entered.

SUMMARY OF CLAIMED SUBJECT MATTER

The claimed subject matter generally relates to steganographically embedding geolocation information in images. One form of steganographic embedding is digital watermarking. Geolocation information may include geo-coordinates, like longitude and latitude, or more complex representations like "geovectors."

In some cases the embedding is limited or confined to specific spatial regions depicted in an image.

One aspect of the invention, as recited in claim 48, is a method of steganographically marking imagery captured from an aerial platform (see, e.g. page 1, paragraph 2; and page 4, paragraph 17). The method includes obtaining first geolocation information corresponding to a first region depicted in the imagery captured from the aerial platform and embedding the first geolocation information in the first region in the form of a digital watermark (see, e.g., page 23,

paragraph 76; page 18, lines 1-3 of paragraph 63; and original claims 40-41). The method further includes obtaining second geolocation information corresponding to at least a second region depicted in the imagery captured from the aerial platform and embedding the second geolocation information in the imagery captured from the aerial platform in the form of a digital watermark (see, e.g., page 11, paragraphs 42-44; page 23, paragraph 76; page 18, lines 1-3 of paragraph 63; and original claim 42).

Another aspect of the invention, as recited in dependent claim 49, is that the second geolocation information of claim 48 is embedded only in the second region (see, e.g., page 23, paragraph 76 and original claim 43).

Yet another aspect, as recited in claim 45, is a method of making a map. The method includes obtaining first geovector information corresponding to at least a first region to be depicted by the map digitally watermarking the first geovector information in the map (see, e.g., page 18, lines 1-3 of paragraph 63; page 19, paragraph 65). The watermarking step includes digitally watermarking the first geovector information redundantly throughout the map (e.g., page 23, lines 5-10; and page 23, lines 10-12 of paragraph 76).

Still another aspect of the claimed invention, as recited in claim 50, is a method of steganographically marking imagery captured from an aerial platform. The method includes obtaining first geolocation information corresponding to a first region depicted in the imagery captured from the aerial platform (see, e.g., page 18, lines 1-3 of paragraph 63; page 19, paragraph 65). The method further includes embedding the first geolocation information in the imagery captured from the aerial platform in the form of a digital watermark, wherein the first geolocation information is redundantly embedded in the imagery captured from the aerial platform (see, e.g., page 23, lines 5-10; and page 23, lines 10-12 of paragraph 76).

Yet another aspect of the invention, as recited in claim 41, is a method of making a map, wherein the map depicts at least a first region and a second region. The method includes obtaining first geolocation information corresponding to at least the first region to be depicted by the map and digitally watermarking the first geolocation information in the map (see, e.g., page 23, paragraph 76; page 18, lines 1-3 of paragraph 63; and original claims 40-41). The

watermarking step includes embedding the first geolocation information only in the first region (see, e.g., page 23, paragraph 76; page 18, lines 1-3 of paragraph 63; and original claims 40-41).

Another aspect of the claimed invention, as recited in claim 42, is a method including obtaining second geolocation information corresponding to at least the second region to be depicted by the map of claim 41 and digitally watermarking the second geolocation information in the map (see, e.g., page 11, paragraphs 42-44; page 23, paragraph 76; page 18, lines 1-3 of paragraph 63; and original claim 42).

Yet another aspect of the invention, as recited in claim 43, is a method where the second geolocation information is only embedded in the second region (see, e.g., page 11, paragraphs 42-44; page 23, paragraph 76; page 18, lines 1-3 of paragraph 63; and original claim 43).

Still another aspect of the claimed invention, as recited in claim 15, is a method of correlating imagery data generated under a plurality of different conditions (see, e.g., Figs. 2a and 2b; and see also pages 13-14, paragraph 52). The method includes embedding imagery characteristics in the imagery data (see, e.g., pages 13-14, paragraph 52). The method further includes modifying the imagery data based on the embedded imagery characteristics so as to standardize at least some of the imagery data (see, e.g., Figs. 2a and 2b; pages 13-14, paragraph 52; Fig. 3; and pages 15-16, paragraph 56).

Another aspect of the claimed invention, as recited in claim 9, is a method of generating a geo-spatial map. The method includes steganographically encoding data in the form of a digital watermark component in each of a plurality of image patches (see, e.g., Fig. 1), the encoded data including a location indicator (see, e.g., Fig. 1; and pages 14-15, paragraph 54). The method further includes piecing together the plurality of image patches based at least in part on the encoded location indicators to provide a geo-spatial map including the plurality of image patches (see, e.g., pages 14-15, paragraph 54; Fig. 3; and pages 15-16, paragraph 56).

Still another aspect of the invention, as recited in claim 11, is a method where least one of the location indicators of claim 9 identifies the geo-coordinates for at least one corner of its respective patch (see, e.g., Fig. 3; and page 15, lines 4-7).

Yet another aspect of the claimed invention, as recited in claim 13, is a method where the location indicators of claim 9 identify a respective patch location within the geo-spatial map relative to at least one adjacent patch (see, e.g., Fig. 3; and page 15, lines 4-7).

Another aspect of the claimed invention, as recited in claim 17, is a method where the imagery characteristics of claim 15 affect a spatial domain representation of the imagery data (see, e.g., Figs. 2a and 2b; and pages 13-14, paragraph 52). The imagery characteristics comprising at least one of scale, rotation, altitude, attitude, resolution, time, imaging device type, and skew (see, e.g., Figs. 2a and 2b; and pages 13-14, paragraph 52).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 9-16, 18, 41-45 and 48-50 stand finally rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,504,571 (hereafter "the Narayanaswami patent").
2. Claim 17 stands finally rejected under 35 U.S.C. 103(a) as being unpatentable over the Narayanaswami patent in view of U.S. Patent No. 6,526,155 (hereafter "the Wang patent").

ARGUMENT

Introduction

The cited references fail to teach or suggest all of the elements of the pending claims for at least the reasons set forth below.

Rejection under U.S.C. 102(e) over the Narayanaswami patent

Claim 48

Independent claim 48 reads as follows:

48. *A method of steganographically marking imagery captured from an aerial platform, said method comprising:*

obtaining first geolocation information corresponding to a first region depicted in the imagery captured from the aerial platform;

embedding the first geolocation information in the first region in the form of a digital watermark;

obtaining second geolocation information corresponding to at least a second region depicted in the imagery captured from the aerial platform; and

embedding the second geolocation information in the imagery captured from the aerial platform in the form of a digital watermark.

The Office cites the Narayanaswami patent at Col. 8, lines 6-21 and 40-62, and Col. 7, lines 25-46 as teaching the combination recited in claim 48. Applicants respectfully disagree.

While the cited passages discuss embedding different parameters (e.g., location and axis orientation) in each image, the parameters represent a single location associated with an image (see, e.g., Col. 7, lines 25-30). The cited Narayanaswami patent passages do not suggest embedding multiple location parameters – *each of which correspond to different regions depicted in the same image* – in the same image. More precisely, the cited passages do not teach or suggest embedding first geolocation information in a first region of an image, and second geolocation information in the same image.

Indeed, the Narayanaswami patent at the cited Col. 7 and Col. 8 passages seems to only embed one geolocation information per image (e.g., see Col. 7, lines 25-30), not multiple different geolocation information per image.

Respectfully, the final rejection of claim 48 should be reversed.

Claim 49

Dependent claim 49 reads as follows:

49. The method according to claim 48, wherein the second geolocation information is embedded only in the second region.

Embedded second geolocation information is limited to the second region. For example, if the embedding is digital watermarking, the watermarking will only be found in an area defined by the second region.

Consider a map depicting an airport and a duck pond near the airport. The second region of claim 41 corresponds to the duck pond, with the second geolocation information (e.g., geo-coordinates) then necessarily corresponding to the duck pond. Embedding the second geolocation information in the map will only occur in the area representing the duck pond, and not in a first region representing the airport. (Of course, there are many other implementations and examples that will fall within the scope of claim 49. Reciting this example should in no way limit the scope of claim 49.).

The Narayanaswami patent gives examples of location information (see, e.g., Col. 7, lines 25-30), but fails to connect this information for embedding only in a second region depicted in a map – where the map depicts several different geographical regions. Instead, at Col. 8, lines 14-16, the Narayanaswami patent merely mentions that recorded parameters can be “watermarked into every captured image.” The Narayanaswami patent fails to teach region-limited watermarking of geolocation information, in combination with the remaining features of claim 49.

We respectfully submit that the final rejection of claim 49 be reversed.

Claim 45

Independent claim 45 reads as follows:

45. *A method of making a map comprising:*

obtaining first geovector information corresponding to at least a first region to be depicted by the map; and

digitally watermarking the first geovector information in the map, wherein said watermarking step comprises digitally watermarking the first geovector information redundantly throughout the map.

First geovector information (e.g., latitude/longitude or other coordinates) corresponds to a first region to be depicted by a map. The first geovector information is redundantly watermarked throughout the map.

By way of example only, a map is divided into 16 blocks. The first region (and corresponding first geovector) corresponds to a first block. Instead of isolating watermarking of the first geovector to the first block, redundant instances of the geovector are watermarked in some or all of the remaining 15 blocks. Related examples are found, e.g., in paragraphs 74 and 76 of the specification. (Of course, there are many other examples and implementations that will be covered by claim 45.).

In contrast, the Narayanaswami patent would allow “recorded parameters to be watermarked into every captured image,” (see Col. 8, lines 14-16) but does not suggest redundantly watermarking first geovector information throughout a map, in combination with the features of claim 45.

The Examiner seems to concede this position, on page 5 of the Office Action (lines 11-12)¹, where it states: “Further, the reference [Narayanaswami] does not disclose watermarking a single set of parameters more than once.”

¹ The Examiner’s statement is made with respect to Claim 41.
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Despite this statement the examiner suggests in paragraph 7, pages 5 and 6 of the final office action, that the Narayanaswami patent *does* teach redundant embedding of geovector information (which corresponds to a first region of a map). The examiner suggests that first geolocation/geovector data that becomes embedded/watermarked is “pieced” together, the watermarking thus becoming redundant.²

Even if we assume – only for argument’s sake – that the Narayanaswami patent pieces together different images, as suggested by the Examiner, the different images would have different geovector information therein, not redundant instances of the first geovector in each of the images, which corresponds to the first region of the map.

We respectfully request that the final rejection of claim 45 be reversed.

Claim 50

Independent claim 50 reads as follows:

50. *A method of steganographically marking imagery captured from an aerial platform, said method comprising:*

obtaining first geolocation information corresponding to a first region depicted in the imagery captured from the aerial platform;

embedding the first geolocation information in the imagery captured from the aerial platform in the form of a digital watermark, wherein the first geolocation information is redundantly embedded in the imagery captured from the aerial platform.

² With reference to our comments, below, supporting patentability of claim 9, we disagree that the Narayanaswami patent teaches “piecing” images together based on encoded indicators.

First geolocation information (e.g., geo-coordinates) corresponds to a first region depicted in imagery captured from an aerial platform. The first geolocation information is redundantly embedded in the imagery in the form of a digital watermark.

By way of example only, aerial imagery is divided into 64 blocks. The first region (and corresponding first geovector) corresponds to a first block. Instead of isolating watermarking of the first geovector to the first block, the geovector is watermarked in some or all of the remaining 63 blocks. Related examples are found, e.g., in paragraphs 74 and 76 of the specification. (Of course, there are many other examples and implementations that will be covered by claim 50.).

In contrast, the Narayanaswami patent calls for “recorded parameters to be watermarked into every captured image,” (see Col. 8, lines 14-16) but does not does not teach or suggest redundantly watermarking first geovector information throughout a map, in combination with the features of claim 50.

Again, the office concedes this position, on page 5 of the Office Action (lines 11-12)³, where it states: “Further, the reference [Narayanaswami] does not disclose watermarking a single set of parameters more than once.”

Despite this statement the examiner suggests in paragraph 7, pages 5 and 6 of the final office action, that the Narayanaswami patent *does* teach redundant embedding of geolocation information (which corresponds to a first region of the aerial imagery). The examiner suggests that first geolocation/geovector data that becomes embedded/watermarked is “pieced” together, the watermarking thus becoming redundant.⁴

Yet as we discussed above, even if we assume – only for argument’s sake – that the Narayanaswami patent pieces together different images, the different images would have different geolocation information therein, not redundant instances of the first geolocation in each of the images.

We respectfully request that the final rejection of claim 50 be reversed.

³ The Examiner’s statement is made with respect to Claim 41.

⁴ With reference to our comments, below, supporting patentability of claim 9, we disagree that the Narayanaswami patent teaches “piecing” images together based on encoded indicators.

Claims 41 and 44

Independent claim 41 reads as follows:

41. *A method of making a map, wherein the map depicts at least a first region and a second region, said method comprising:*
obtaining first geolocation information corresponding to at least the first region to be depicted by the map; and
digitally watermarking the first geolocation information in the map, wherein said watermarking step comprises embedding the first geolocation information only in the first region.

The map of claim 41 depicts at least a first region and a second region. A watermark including geolocation information – corresponding to the first region – is embedded only in the first region.

An example presented in an earlier response is illustrative. Consider a map depicting an airport and a duck pond near the airport. The first region of claim 41 may correspond to the duck pond and the first geolocation information (e.g., geo-coordinates) then necessarily corresponds to the duck pond. Embedding the first geolocation information in the map would then occur only in the area representing the duck pond, and not in a second region representing the airport. (Of course, there are many other implementations and examples that will fall within the scope of claim 41. Reciting this example should in no way limit the scope of claim 41.).

The Narayanaswami patent is cited as teaching embedding first geolocation information only in a first region (see Office Action at page 10, lines 5-7 of paragraph 31) of a map depicting first and second regions. Applicants respectfully disagree

The Narayanaswami patent gives examples of location information (see, e.g., Col. 7, lines 25-30), but fails to connect this information for embedding only in a first region depicted in a map – where the map depicts several different geographical regions. Instead, at Col. 8, lines 14-16, the Narayanaswami patent merely mentions that recorded parameters can be “watermarked into every captured image.” The Narayanaswami patent fails to teach region based watermarking of geolocation information, in combination with the remaining features of claim 41.

The Examiner’s statements on page 5, paragraph 6, fail to address this type of region based watermarking of geolocation information.

We respectfully submit that the final rejection of claim 41 be reversed.

Claim 42

Dependent claim 42 recites as follows

42. The method according to claim 41, further comprising obtaining second geolocation information corresponding to at least the second region to be depicted by the map and digitally watermarking the second geolocation information in the map.

While the cited passages (i.e., Col. 7, lines 25-46 and Col. 8, lines 6-21) discuss embedding different parameters (e.g., a single location and axis orientation) in each image, the passages are not understood to embed multiple location parameters – *each of which correspond to different regions depicted in the same image* – in the same image. More precisely, the cited passages are not understood to teach or suggest embedding first geolocation information only in a first region of an image, and second, different geolocation information in the same image.

Indeed, the Narayanaswami patent at the cited Col. 7 and 8 passages seems to only embed one geolocation information per image (e.g., see Col. 7, lines 25-30), not multiple different geolocation information per image.

Respectfully, the final rejection of claim 42 should be reversed.

Claim 43

Dependent claim 43 reads as follows:

43. The method according to claim 42, wherein said the second geolocation information is only embedded in the second region.

Claim 43 further defines the combinations recited in claims 41 and 42. Claim 43 requires that the both the first geolocation information and the second geolocation information only be embedded in the first region and second region, respectively.

Again, the Narayanaswami patent is not understood to teach or suggest limited region-based embedding. Instead, the Narayanaswami patent would merely embed information “into every captured image” (see Col. 8, lines 14-16).

We respectfully submit that claim 43 should be allowed.

Claims 15, 16 and 18

Independent claim 15

15. A method of correlating imagery data generated under a plurality of different conditions, said method comprising:

embedding imagery characteristics in the imagery data; and

modifying the imagery data based on the embedded imagery characteristics so as to standardize at least some of the imagery data.

Imagery characteristics are embedded in imagery data. These characteristics provide clues as to the nature (e.g., scale, skew, resolution, rotation, etc.) of the imagery. Claim 15 requires that the imagery be modified based on the embedded imagery characteristics so as to standardize the imagery. Modification may be needed, e.g., since the imagery data is generated

or captured under a plurality of different conditions (e.g., captured at different angles or altitudes).

Modification may involve modifying or changing resolution, scale, skew, rotation, etc. of the imagery data based on the imagery characteristics, see, e.g., paragraph 52, spanning pages 13 and 14 of the specification, and Figs. 2a and 2b. (Of course, there are many other modifications that will fall within the scope of claim 15. And this example should in no way limit the scope of claim 15.)

The Narayanaswami patent is cited as teaching modifying imagery data based on embedded imagery characteristics so as to standardize at least some of the imagery data (see the final Office Action at page 4, lines 6-7 and 10-13 paragraph 5, citing the Narayanaswami patent at Col. 4, lines 2-6 and 19-41).

Applicants respectfully disagree.

The Narayanaswami patent at Col. 4, lines 2-6 discusses querying an image archive, and lines 19-31 discusses retrieving digital images from an image database and accessing a geographic boundary database. Col. 4, lines 32-41, discusses generating a map by retrieving digital images. Thus, these passages are not understood to teach modifying or changing imagery data based on embedded characteristics so as to standardize some of the imagery characteristics.

We respectfully request that the final rejection of claim 15 be reversed.

Claims 9, 10, 12 and 14

Independent claim 9 reads as follows:

9. *A method of generating a geo-spatial map comprising:*
steganographically encoding data in the form of a digital watermark component in each
of a plurality of image patches, said encoded data including a location indicator; and
piecing together the plurality of image patches based at least in part on the encoded
location indicators to provide a geo-spatial map including the plurality of image patches.

The Examiner cites passages in the Narayanaswami patent at Col. 3 and Col. 4 as teaching the combination as recited in claim 9. Applicants respectfully disagree.

In particular, while lines 32-41 of Col. 4, may discuss map generation, the passage is not understood to piece together image blocks based on encoded location indicators. In fact, the “generating” cited by the Examiner seems to “retrieve” images, but not piece them together based on encoded location indicators. The retrieved images are then displayed, e.g., as discussed at Col. 4, line 42.

But the Narayanaswami patent lacks the teaching of arranging images together (or “quilting,” see, e.g., paragraph 52 of subject specification) based on the encoded information.

We respectfully request that the final rejection of claim 9 be reversed.

Claims 11

Dependent claim 11 recites:

11. *The method according to claim 10, wherein at least one of the location indicators identifies the geo-coordinates for at least one corner of its respective patch.*

The Office relies on the Narayanaswami patent at Col. 3, lines 6-50; Col. 4, lines 2-41 and Figs. 2 and 3 as teaching encoded location indicators identifying geo-coordinates for at least one corner of its respective patch.

We do not see any mention of identifying geo-coordinates for corners of image patches in the cited passages. Thus, the Narayanaswami patent fails to teach all of the limitations of claim 11.

We respectfully request reversal of the outstanding rejection of claim 11.

Claims 13

Dependent claim 13 recites:

13. *The method according to claim 9, wherein the location indicator identifies a respective patch location within the geo-spatial map relative to at least one adjacent patch.*

The Office again relies on the Narayanaswami patent at Col. 3, lines 6-50; Col. 4, lines 2-41 and Figs. 2 and 3 as teaching encoded location indicators identifying a respective patch location within the geo-spatial map relative to at least one adjacent patch.

While the cited passages may record geographic location data (see, e.g., Col. 3, lines 58-61 -- altitude and longitude) for each patch, the passages are not understood to encode information identifying locations in a relative manner to adjacent patches.

We respectfully request reversal of the outstanding rejection of claim 13.

Rejection under U.S.C. 103(a) over the Narayanaswami patent in view of the Wang patent

Claim 17

Dependent claim 17 reads as follows:

17. The method according to claim 15, wherein said imagery characteristics affect a spatial domain representation of the imagery data, said imagery characteristics comprising at least one of scale, rotation, altitude, attitude, resolution, time, imaging device type, and skew.

Recall that the imagery characteristics are embedded in imagery data (see claim 15). The characteristics are used to determine how to modify the imagery data so as to standardize the imagery data (see, e.g., applicants' Figs. 2a and 2b).

The Wang patent changes a color level within an image to accommodate a visually perceptible pattern (see, Fig. 1, element 110, of the Wang patent). In contrast, claim 17 would standardize different images generated under different conditions (see, e.g., applicants' Figs. 2a and 2b) through reliance on the imagery characteristics.

Applicants also object to the proposed combination of the Narayanaswami patent with the Wang patent. The Narayanaswami patent is understood to deal with imperceptible digital

watermarking (or steganographic encoding) while the relied upon passages from the Wang patent envision "visible" watermarks. Moreover, the tie-in feature relied on from the Narayanaswami patent – *time* – (see page 12 of the office action at paragraph 26, citing the Narayanaswami patent, Col. 3, lines 55-65) is not even discussed at the relied upon passages of the Wang patent (see page 13 of the office action, citing the Wang patent at Col. 4, line 4 – Col. 5, line 9.). Instead, the cited passages of the Wang patent discuss varying gray scale levels. Thus, there has not been a sufficient showing of a successful combination, or a likelihood of success, even if combined.

We respectfully request that the final rejection of claim 17 be reversed.

CONCLUSION AND REQUEST FOR REVERSAL

The cited references fail to disclose all of the limitations of the pending claims. (Other deficiencies of the art need not be further belabored at this time.) As such, the claims are patentable over the cited references.

Applicants respectfully request that the Board reverse the final rejection of the pending claims.

Date: September 20, 2004

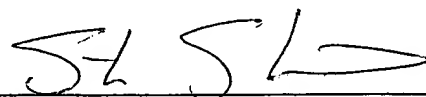
Customer No. 23735

Telephone: 503-885-9699
FAX: 503-885-9880

Respectfully submitted,

DIGIMARC CORPORATION

By



Steven W. Stewart
Registration No. 45,133

CLAIMS APPENDIX

3. (previously presented): A method of compiling aerial imagery and generating a map there from comprising:

segmenting image data into a plurality of patches, the image data acquired from an aerial platform;

digitally watermarking the image data to include imagery characteristics corresponding to the image data, wherein said digital watermarking comprises embedding a watermark in each of the plurality of patches, the watermark including imagery characteristics for its respective patch;

correlating the image data based on the imagery characteristics; and

generating a map from the correlated image data.

4. (original): The method according to claim 3, wherein said correlating step comprises adjusting image characteristics for at least one of the plurality of patches so that at least two adjacently positioned patches have similar imagery characteristics.

5. (previously presented): The method according to claim 3, wherein said generating step comprises quilting the plurality of patches together to generate the map.

6. (previously presented): The method according to claim 3, wherein the aerial platform comprises at least one of satellite, airplane, space shuttle, and unmanned aircraft.

9. (previously presented): A method of generating a geo-spatial map comprising:
steganographically encoding data in the form of a digital watermark component in each of
a plurality of image patches, said encoded data including a location indicator; and
piecing together the plurality of image patches based at least in part on the encoded
location indicators to provide a geo-spatial map including the plurality of image patches.

10. (previously presented): The method according to claim 9, wherein the location
indicator identifies geo-coordinates of its respective image patch, with each of the plurality of
image patches including a unique location identifier representing unique geo-coordinates.

11. (previously presented): The method according to claim 10, wherein at least one of the
location indicators identifies the geo-coordinates for at least one corner of its respective patch.

12. (previously presented): The method according to claim 9, wherein the
location indicator identifies a respective patch location relative to the map.

13. (previously presented): The method according to claim 9, wherein the location
indicator identifies a respective patch location within the geo-spatial map relative to at least one
adjacent patch.

14. (previously presented): The method according to claim 9, wherein the location indicator comprises an index, and said method further comprises indexing a database with the index to retrieve location information.

15. (previously presented): A method of correlating imagery data generated under a plurality of different conditions, said method comprising:

embedding imagery characteristics in the imagery data; and

modifying the imagery data based on the embedded imagery characteristics so as to standardize at least some of the imagery data.

16. (previously presented): The method according to claim 15, wherein said conditions comprise at least one of aerial platforms, altitude, time, cloud cover, resolution and scale.

17. (previously presented): The method according to claim 15, wherein said imagery characteristics affect a spatial domain representation of the imagery data, said imagery characteristics comprising at least one of scale, rotation, altitude, attitude, resolution, time, imaging device type, and skew.

18. (original): The method according to claim 15, wherein said imagery characteristics comprise an index which is used to identify at least one of scale, rotation, altitude, attitude, resolution, time, imaging device type, and skew.

41. (previously presented): A method of making a map, wherein the map depicts at least a first region and a second region, said method comprising:

obtaining first geolocation information corresponding to at least the first region to be depicted by the map; and

digitally watermarking the first geolocation information in the map, wherein said watermarking step comprises embedding the first geolocation information only in the first region.

42. (previously presented): The method according to claim 41, further comprising obtaining second geolocation information corresponding to at least the second region to be depicted by the map and digitally watermarking the second geolocation information in the map.

43. (previously presented): The method according to claim 42, wherein said the second geolocation information is only embedded in the second region.

44. (previously presented): The method according to claim 41, wherein the first region comprises at least one of a fire hydrant, tree, road, building, lake, stream, forest, manhole, water line, gas line, power line, park, property line, fence, boarder, depot, geographical area, stadium, hospital, school, church, store and airport.

45. (previously presented): A method of making a map comprising:
obtaining first geovector information corresponding to at least a first region to be depicted by the map; and
digitally watermarking the first geovector information in the map, wherein said watermarking step comprises digitally watermarking the first geovector information redundantly throughout the map.

48. (previously presented): A method of steganographically marking imagery captured from an aerial platform, said method comprising:

obtaining first geolocation information corresponding to a first region depicted in the imagery captured from the aerial platform;

embedding the first geolocation information in the first region in the form of a digital watermark;

obtaining second geolocation information corresponding to at least a second region depicted in the imagery captured from the aerial platform; and

embedding the second geolocation information in the imagery captured from the aerial platform in the form of a digital watermark.

49. (previously presented): The method according to claim 48, wherein the second geolocation information is embedded only in the second region.

50. (previously presented): A method of steganographically marking imagery captured from an aerial platform, said method comprising:

obtaining first geolocation information corresponding to a first region depicted in the imagery captured from the aerial platform;

embedding the first geolocation information in the imagery captured from the aerial platform in the form of a digital watermark, wherein the first geolocation information is redundantly embedded in the imagery captured from the aerial platform.



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| 10/002,954 | 10/08/2001 | Geoffrey B. Rhoads | P0477 | 4464 |
| 23735 | 7590 | 05/14/2004 | EXAMINER | |
| DIGIMARC CORPORATION 19801 SW 72ND AVENUE SUITE 250 TUALATIN, OR 97062 | | | BLACKMAN, ANTHONY J | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2676 | 18 |

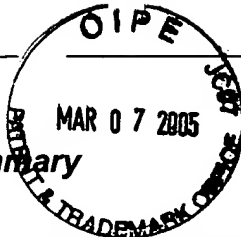
DATE MAILED: 05/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Docketed: 7-17-04
8-14-04
Book: _____ Init: LS

MAY 17 2004

Office Action Summary



Application No.

10/002,954

Applicant(s)

RHOADS ET AL.

Examiner

ANTHONY J BLACKMAN

Art Unit

2676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-6, 9-18, 41-45 and 48-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-6 is/are allowed.
- 6) ☒ Claim(s) 9-18, 41-45 and 48-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 2676



DETAILED ACTION

Specification

1. Examiner acknowledges applicant's amending the title.

Allowable Subject Matter

2. The following is an examiner's statement of reasons for allowance for claims 3-6:
none of the prior art expressly teach or suggest *digitally watermarking the image data to include imagery characteristics corresponding to the image data, correlating the image data based on the imagery characteristics; and generating a map from the correlated image data*. Examiner interprets NARYANASWAMI et al, US Patent No. 6,504,571 to disclose a method of compiling aerial imagery because use of a camera elevated above ground level provides aerial imagery 100 capture (column 8, lines 6-21) as claimed; a map from the captured imagery may be compiled from the "image database 216" (column 8, line 54). It is inherent that the "digital images stored in the memory 108" are also stored in the "image database 216" and the images of the image database, are indexed by parameters (column 7, lines 25-47), and these parameters extracted from the image database correspond to maps.
Further "...a watermarking method allows the recorded parameters (column 7, lines 25-47) to be watermarked into every captured image (column 8, lines 14-16)", however, does not expressly teach or suggest the following features;

Art Unit: 2676

“...digitally watermarking the image data to include imagery characteristics corresponding to the image data, correlating the image data based on the imagery characteristics; and generating a map from the correlated image data.”

HENDRICKSON et al, US Patent No. 6,529,615 also disclose aerial photographing means, segmenting aerial photographed images and then “piecing the photographs together to form a composite of the field [photographs/images/maps] (column 11, lines 35-39).” However, does not disclose use of watermarking/embedding/steganographic processing. Therefore, because neither NARAYANASWAMI et al nor HENDRICKSON et al, either alone or in combination reasonably suggest *digitally watermarking the image data to include imagery characteristics corresponding to the image data, correlating the image data based on the imagery characteristics; and generating a map from the correlated image data*, claims 3-6 meet necessary conditions for allowance.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Response to Arguments

3. Applicant's arguments filed 2/12/04 have been fully considered but they are not persuasive. Examiner interprets the prior art to read upon claims 7-18, 41-45 and 48-50.
4. Regarding claim 9, examiner interprets prior art differently from view of applicant's in that applicant feels that the prior art does not teach “piecing together” the

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plurality of image patches based at least in part on the encoded location indicator.

Image retrieval means is disclosed in Column 3; lines 5-50 disclose prior art advances prior to US Patent 6,504,571 and further advanced by US Patent 6,504,571 at least at column 4, lines 2-6, 19-23, 24-31 and most notably at lines 32-41. Applicant argues against US Patent 6,504,571 without utilizing the entire cites quoted by examiner.

Utilizing a portion of the cited references rather than discussing the cited references in their entirety provides an unfair representation of lines 32-41 at column 4. Reading the cited references together is necessary to understand both the scope and breadth of the cites taken in total when considering claim 9.

5. Regarding claim 15, examiner interprets prior art differently from view of applicants in that applicant feels that the prior art does not teach modifying watermarked data through modification of an image, but not modifying imagery data based on embedded imagery characteristics. The modified embedded imagery characteristics are interpreted by examiner to correspond to the explanation of claim 9 of means for generating a map of a specified geographic location data at least at column 4, lines 2-6, 19-23, 24-31 and most notably at lines 32-41 because the piecing together means is a modification means. Until claim language more explicitly defines the means of modification examiner maintains use of prior art. Further, regarding use of the broadly recited term, "standardization", standardization is interpreted by examiner to correspond to the explanation of claim 9 of means for generating a map of a specified geographic location data at least at column 4, lines 2-6, 19-23, 24-31 and most notably at lines 32-41 because the piecing together means is a modification means and as for

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further explanation directly relating to the term "standardization", modifying imagery data based on embedded imagery characteristics serves as a means of standardization.

Examiner requests applicant to consider providing further detail explaining any particular processing of the "standardization".

6. Regarding claim 41, examiner interprets prior art differently from view of applicants in that applicant feels that the prior art does not teach embedding the first geolocation only in the first region. NARAYANASWAMI et al embeds/watermarks the first geolocation only in the first region when there is not a set of plurality of parameters (column 7, lines 25-46) queried, for example, when using the parameters. It is inherent that each geolocation (at least, i.e., location data, meaning longitude and latitude) will correspond to a single embedding means/watermark as claimed. Further, the reference does not disclose watermarking as a single set of parameters more than once.

7. Regarding claim 45 and 50, examiner interprets prior art differently from view of applicants in that applicant feels that the prior art does not teach redundantly watermarking the first geovector information. Returning again to the "piecing together" means of claim 9, the piecing together comprises a first geolocation/geovector data that becomes embedded/watermarked. As this first geolocation/geovector data that becomes embedded/watermarked is pieced together, the watermarking thus becomes redundant. The geovector information may include longitude or latitude in combination or singly contain longitude or latitude. For example, examiner agrees with applicant that an arbitrary longitude and latitude could only apply to one region. However, either longitude

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or latitude as a single set of parameters, could be used piecing together separate regions including the same longitude or latitude. Therefore applicant's argument about "different" geovector information becomes moot. Examiner respectfully suggests that applicant consider providing further support regarding the processing or specific action regarding the use of "redundancy", in order to overcome present rejection.

Examiner respectfully maintains utilization of NARATYANASWAMI et al as primary reference reading upon amended claims with the exception of claims 3-6, rendered allowable because due to the combination of the following features, "...suggest *digitally watermarking the image data to include imagery characteristics corresponding to the image data, correlating the image data based on the imagery characteristics; and generating a map from the correlated image data*".

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 9-16, 18, 41-45 and 48-50 are rejected under 35 U.S.C. 102(e) as being anticipated by NARAYANASWAMI et al, US Patent No. 6,504,571.

9. As per claim 9, examiner interprets NARAYANASWAMI et al ((column 3, lines 6-50, column ~~4~~ lines ~~2-41~~, figures 2 and 3) to disclose the following;

a method of generating a geo-spatial map comprising:

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steganographically encoding data in the form of a digital watermark component in each of a plurality of image patches, said encoded data including a location indicator; and piecing together the plurality of image patches based at least in part on the encoded location indicators indicate to provide a geo-spatial map including the plurality of image patches.

10. As per claim 10, examiner interprets NARAYANASWAMI et al to meet limitations of claim 9 and examiner interprets NARAYANASWAMI et al (column 3, lines 6-50, column 4, lines 2-41, figures 2 and 3) to disclose the following limitations, wherein the location indicator identifies geo-coordinates of its respective image patch, with each of the plurality of image patches including a unique location identifier representing unique geo-coordinates.

11. As per claim 11, examiner interprets NARAYANASWAMI et al to meet limitations of claim 10 and examiner interprets NARAYANASWAMI et al (column 3, lines 6-50, column 4, lines 2-41, figures 2 and 3) to disclose the following limitations, wherein at least one of the location indicators identifies the geo-coordinates for at least one corner of its respective patch.

11. As per claim 12, examiner interprets NARAYANASWAMI et al to meet limitations of claim 10 and examiner interprets NARAYANASWAMI et al (column 3, lines 6-50, column 4, lines 2-41, figures 2 and 3) to disclose the following limitations, wherein the location indicator identifies a respective patch location relative to the map.

12. As per claim 13, examiner interprets NARAYANASWAMI et al to meet limitations of claim 9 and examiner interprets NARAYANASWAMI et al (column 3, lines 6-50,

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column 4, lines 2-41, figures 2 and 3) to disclose the following limitations, wherein the location indicator identifies a respective patch location within the geo-spatial map relative to at least one adjacent patch.

13. As per claim 14, examiner interprets NARAYANASWAMI et al to meet limitations of claim 9 and examiner interprets NARAYANASWAMI et al (column 3, lines 6-50, column 4, lines 2-41, figures 2 and 3) to disclose the following limitations, wherein the location indicator comprises an index, and said method further comprises indexing a database with the index to retrieve location information.

14. As per claim 15, examiner interprets NARAYANASWAMI et al (column 3, lines 6-50, column 4, lines 24-40 [at least inherent satellite imagery], column 8, lines 40-62, column 9, lines 33-40, column 10, lines 48-61, column 11, line 12-column 12, lines 22 [at least inherent satellite imagery]) disclose a method of correlating imagery data generated under a plurality of different conditions, said method comprising: embedding imagery characteristics in the imagery data (figure 1, elements 100 and 134, column 8, lines 6-21, it is inherent that the watermarking means bears similar results to embedding means); and modifying the imagery data based on the embedded imagery characteristics so as to standardize at least some of the imagery data (column 4, lines 2-6, 19-23, 24-31, column 8, lines 6-21 [wherein at least verifying the authenticity of the pictures inherently bears similar results to the standardization means]).

16. As per claim 16, examiner interprets NARAYANASWAMI et al to meet limitations of claim 15 and also discloses (column 3, lines 55-65) to meet, wherein said conditions

comprise at least one of aerial platforms, altitude, time, cloud cover, resolution and scale.

15. As per claim 18, examiner interprets NARAYANASWAMI et al to meet limitations of claim 15 and also discloses (column 3, lines 55-65 – at least suggest the underlined time element) to meet, wherein said imagery characteristics comprise an index which is used to identify at least one of scale, rotation, altitude, attitude, resolution, time, imaging device type, and skew.

16. As per claim 41, examiner interprets NARAYANASWAMI et al (column 3, lines 6-50 and column 4, lines 2-41) to disclose A method of making a map, wherein the map depicts at least a first region and a second region, said method (the following cites address the remaining limitations of claim 41 as recited - column 7, lines 25-46, column 8, lines 6-21. Note: please refer to response to arguments in section 3 of this office action) comprising: obtaining first geolocation information corresponding to at least a first region to be depicted by the map; and digitally watermarking the first geolocation information in the map, wherein said watermarking step comprises embedding the first geolocation information only in the first region.

17. As per claim 42, examiner interprets NARAYANASWAMI et al to meet limitations of claim 41 and the following cite (column 7, lines 25-46 and column 8, lines 6-21 discloses the following limitations and please refer to response to arguments in section 3 of this office action), further comprising obtaining second geolocation information corresponding to at least the second region to be depicted by the map and digitally watermarking the second geolocation information in the map.

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18. As per claim 43, examiner interprets NARAYANASWAMI et al to meet limitations of claim 42 and the following cite (column 7, lines 25-46 and column 8, lines 6-21 discloses the following limitations and please refer to response to arguments in section 3 of this office action), wherein said the second geolocation information is only embedded in the second region.

19. As per claim 44, examiner interprets NARAYANASWAMI et al to meet limitations of claim 41 and the following cite (column 7, lines 25-46 and column 8, lines 6-21, column 3, lines 6-50, column 5, line 60-column 6, line 4, column 9, lines 5-66, includes at least the following underlined features), wherein the first region comprises at least one of a fire hydrant, tree, road, building, lake, stream, forest, manhole, water line, gas line, power line, park, property line, fence, boarder, depot, geographical area, stadium, hospital, school, church, store and airport.

20. As per claim 45, examiner interprets NARAYANASWAMI et al to disclose a method of making a map (column 2, lines 1-5, column 3, lines 6-50, column 4, lines 32-41) comprising: obtaining first geovector information corresponding to at least a first region to be depicted by the map (column 2, lines 1-5, column 3, lines 6-50, column 4, lines 32-41, column 7, lines 25-46, column 8, lines 6-21, please refer to section 3 of this office action); and digitally watermarking the first geovector information in the map, wherein said watermarking step comprises digitally watermarking the first geovector information redundantly throughout the map (column 2, lines 1-5, column 3, lines 6-50, column 4, lines 32-41, column 7, lines 25-46, column 8, lines 6-21, please refer to section 3 of this office action).

21. As per claim 48 examiner interprets NARAYANASWAMI et al to disclose a method of steganographically marking image captured from an aerial platform disclose a method of compiling aerial imagery because use of a camera elevated above ground level provides aerial imagery 100 capture (column 8, lines 6-21) as claimed, said method (disclosed at the following cites also meets the following limitations of claim 48 - (column 7, lines 25-46 and column 8, lines 6-21 and 40-62, please refer to section 3 of this office action); comprising: obtaining first geolocation information corresponding to a first region depicted in the imagery captured from the aerial platform (disclose a method of compiling aerial imagery because use of a camera elevated above ground level provides aerial imagery 100 capture; embedding the first geolocation information in the first region in the form of a digital watermark; obtaining second geolocation information corresponding to at least a second region depicted in the imagery captured from the aerial platform; and embedding the second geolocation information in the imagery captured from the aerial platform in the form of a digital watermark.

22. As per claim 49 examiner interprets NARAYANASWAMI et al (column 7, lines 25-46 and column 8, lines 6-21 and 40-62, please refer to section 3 of this office action); to meet limitations of claim 48 and claim 49 as follows, wherein the second geolocation information is embedded only in the second region.

23. As per claim 50, examiner interprets NARAYANASWAMI et al to steganographically marking imagery captured from an aerial platform

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disclose a method of compiling aerial imagery because use of a camera elevated above ground level provides aerial imagery 100 capture (column 8, lines 6-21) as claimed, said method (disclosed at the following cites also meets the following limitations of claim 48 - (column 7, lines 25-46 and column 8, lines 6-21 and 40-62, please refer to section 3 of this office action) comprising: obtaining first geolocation information corresponding to a first region depicted in the imagery captured from the aerial platform embedding the first geolocation information in the imagery captured from the aerial platform in the form of a digital watermark, wherein the first geolocation information is redundantly embedded in the imagery captured from the aerial platform.

Claim Rejections - 35 USC § 103

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

25. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over NARAYANASWAMI et al, US Patent No. 6,504,571 in view of WANG et al, US Patent No. 6,526,155.

26. As per claim 17, examiner interprets NARAYANASWAMI et al to meet limitations of claim 15, and suggest said imagery characteristics comprising at least one of scale, rotation, altitude, attitude, resolution, time, imaging device type, and skew. (column 3, lines 55-65 for the at least underlined features),

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however, NARAYANASWAMI et al does not expressly teach wherein said imagery characteristics affect a spatial domain representation of the imagery data. WANG et al suggest the feature lacking above by modifying watermarked image areas with at least variable gray-scale range (column 4, lines 4-10, 11-column 5, line 9). It would have been obvious to one skilled in the art at the time of the invention to utilize the at least modifying watermarked image areas with at least variable gray-scale range of WANG et al to modify the method for querying digital image archives including a watermarking means for each captured image of NARAYANASWAMI et al because both inventions share similar technological environments corresponding to at least watermarking image data related to the processing of variably placed watermarking signals (see NARAYANASWAMI et al column 4, lines 6-19 and see WANG et al column 4, line 60-column 5, line 9).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J BLACKMAN whose telephone number is 703-305-0833. The examiner can normally be reached on FLEX Schedule Monday through Friday between the hours of 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MATTHEW BELLA can be reached on 703-308-6829. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.



ANTHONY J BLACKMAN
Examiner
Art Unit 2676



MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

INFORMATION DISCLOSURE STATEMENT

Docket: P0477

Ser. No. 10/002,954

Applicant: Rhoads et al.

Filed: October 23, 2001

Group: 2676

US Patent Documents

| Ex'r Initial | Number | Date | Inventor | Class |
|-----------------|---------|----------|--------------------|-------|
| <i>JB</i> | 6282648 | 8/28/01 | Walker et al. | |
| | 6310956 | 10/30/01 | Morito et al. | |
| | 6529615 | 3/4/03 | Hendrickson et al. | |
| <i>JB</i> | 6650761 | 11/18/03 | Rodriguez et al. | |
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Other References

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Examiner Signature:

Date Considered:

*Examiner: Initial if considered, whether or not in conformance with MPEP 609; draw line through cite if not in conformance and not considered. Include copy of this form with next communication to applicant.

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| Other References | |
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|---|--------------------------------|
| Examiner Signature: <i>Paul J. Blackman</i> | Date Considered: <i>5/3/04</i> |
| *Examiner: Initial if considered, whether or not in conformance with MPEP 609; draw line through cite if not in conformance and not considered. Include copy of this form with next communication to applicant. | |

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